

REMARKS

Applicants respectfully request reconsideration and allowance of the present application. Claims 1-89 are pending in the application.

Rejection of Claims Under 35 U.S.C. § 102(b)

In the Office Action, the Examiner rejected claims 1, 5-12, 39-42, 57-61, 72, 73, 76, 80, 82, 84 and 86-89 under 35 U.S.C. § 102(b) as being anticipated by admitted prior art shown in FIG. 1 and corresponding text of the specification ("APA"). For reasons set forth more fully below, Applicants respectfully traverse this rejection as to all claims.

Independent Claim 1 Patentably Defines Over APA

Claim 1 requires, *inter alia* :

- [a] operat[ing] upon a received data packet containing a plurality of symbols, at least one of the symbols including encoding bits disposed therein and at least one subsequent data symbol encoded in a manner corresponding to the encoding bits of the symbol,
- [b] decoding the encoding bits of the one symbol;
- [c] setting the gain of the receive path amplifier to correspond to an appropriate gain that is determined in part based upon the encoding bits; and
- [d] amplifying the at least one subsequent data symbol with the appropriate gain.

Claim 1 thus explicitly and clearly requires a method of permitting mid-packet gain changes in a digital receiver. In particular, a packet received by a receive path amplifier in a digital receiver contains a plurality of symbols including at least one symbol including encoding bits and at least one subsequent data symbol encoded in accordance with the encoding bits. The method requires decoding the encoding bits of the one symbol to determine an appropriate gain, setting the gain to the appropriate gain in accordance with the encoding bits, and then amplifying the data symbol with the appropriate gain. Antecedent basis of the claim requires that the setting of the gain and amplification of data with the appropriate gain must happen within the same data packet.

As set forth in the present specification at, for example, page 8, lines 7-18:

The methods and apparatus described operate upon a received data packet containing a plurality of symbols, with at least one of the symbols including encoding bits disposed therein and at least one subsequent data symbol encoded in a manner corresponding to the encoding bits of the symbol. In a preferred embodiment, a single guard interval is disposed between the one symbol and the subsequent data symbol, and any gain changes take place during this guard interval.

According to one aspect of the present invention, there is described a method that locates the one symbol and decodes the encoding bits of the one symbol. Thereafter, the gain of the receive path amplifier is set to correspond to an appropriate gain that is determined in part based upon the encoding bits. Once determined, the appropriate gain is applied to the variable gain amplifier, so that the at least one subsequent data symbol is amplified with the appropriate gain.

The requirements of claim 1 are not taught or suggested by the APA as exemplified by FIG. 1. As explicitly set forth in the specification at page 6, line 18 to page 7, line 2:

In operation of a conventional receiver of this type, the gain used by the automatic gain control amplifier of circuit 214 is initially determined during the initial short symbol training sequence, and then kept constant for the remainder of the packet. Thus, since the gain is held constant thereafter, it must be maintained at a level that allows the sizing of the received symbols to be large enough such that even if the most complex modulation is used in later symbols in the packet, sufficient SNR will exist so that it is received correctly, as described above.

The specification acknowledges (see the present specification at page 7, lines 3-10) that other types of receivers can continuously vary the gain based on incoming signals, which gain change may by happenstance occur in the middle of a symbol. However, such receivers do not operate to determine an appropriate gain by decoding the encoding bits within a symbol, nor do they in any way vary gain based on the encoding bits of the same packet, as explicitly required by claim 1.

Accordingly, the invention of claim 1 patentably defines over the APA, and the § 102 rejection thereof should be withdrawn, along with the rejection of claims 5-12 that depend therefrom.

Independent Claim 39 Patentably Defines Over APA

Claim 39 requires, *inter alia* :

- [a] operat[ing] upon a received data packet containing a plurality of symbols, at least one symbol having a first type of encoding and including encoding bits identifying one of a plurality of second type of encodings and at least one subsequent data symbol encoded in a manner corresponding to the one identified second type of encoding,
- [b] amplifying the received one symbol with a first gain corresponding to the first type of encoding
- [c] decoding the encoding bits of the one symbol;
- [d] changing the gain of the receive path amplifier to a second gain corresponding to the one identified second type of encoding;
- and
- [e] amplifying the received at least one subsequent data symbol with the second gain.

Claim 39 thus explicitly and clearly requires a method of permitting mid-packet gain changes in a digital receiver. As with claim 1, a packet received by a receive path amplifier in a digital receiver contains a plurality of symbols including at least one symbol including encoding bits and at least one subsequent data symbol encoded in accordance with the encoding bits. The method of claim 39 requires amplifying the one symbol with a first gain, decoding the encoding bits of the one symbol to determine a second type of encoding, changing the gain to a second gain in accordance with the identified second type of encoding, and then amplifying the data symbol with the second gain. Antecedent basis of the claim requires that the changing of the gain and amplification of data with the second gain must happen within the same data packet.

Similarly as set forth in connection with claim 1, the requirements of claim 39 are not taught or suggested by the APA as exemplified by FIG. 1. At most, the APA suggests that certain types of receivers can continuously vary the gain based on incoming signals, which gain change may by happenstance occur in the middle of a symbol. However, such receivers do not

operate to determine an appropriate second gain by decoding the encoding bits within a first symbol and changing the gain to the second gain and amplifying a data symbol in accordance with the decoded encoding bits of the same packet.

Accordingly, the invention of claim 39 patentably defines over the APA, and the § 102 rejection thereof should be withdrawn, along with the rejection of claims 40-42 and 57-61 that depend therefrom.

Independent Claim 72 Patentably Defines Over APA

Claim 72 requires, *inter alia* :

- [a] receiv[ing] a packet containing a plurality of symbols, at least one of the symbols including encoding bits disposed therein and at least one subsequent data symbol encoded in a manner corresponding to the encoding bits of the symbol,
- [b] amplif[ing] each symbol in the packet with a determined gain;
- [c] decoding the encoding bits within the symbol prior arrival of the at least one subsequent data symbol;
- [d] determin[ing] an appropriate gain based upon the decoded encoding bits; and
- [e] caus[ing] the determined gain to be the appropriate gain for the at least one subsequent data symbol.

Claim 72 thus explicitly and clearly requires an apparatus that is capable of permitting mid-packet gain changes in a digital receiver. As with claim 1, a packet received by a receiver apparatus contains a plurality of symbols including at least one symbol including encoding bits and at least one subsequent data symbol encoded in accordance with the encoding bits. The apparatus of claim 72 requires amplifying each symbol with a determined gain, decoding the encoding bits of the one symbol to determine a an appropriate gain, causing the gain to be the appropriate gain for amplifying the subsequent data symbol. Antecedent basis of the claim requires that the determining and setting of gain to the appropriate gain must happen to symbols within the same data packet.

Similarly as set forth in connection with claim 1, the requirements of claim 72 are not taught or suggested by the APA as exemplified by FIG. 1. At most, the APA suggests that certain types of receivers can continuously vary the gain based on incoming signals, which gain

change may by happenstance occur in the middle of a symbol. However, such receivers do not operate to determine an appropriate gain by decoding the encoding bits within one symbol and causing the gain to be the appropriate gain and amplifying a data symbol in accordance with the decoded encoding bits of the same packet.

Accordingly, the invention of claim 72 patentably defines over the APA, and the § 102 rejection thereof should be withdrawn.

Independent Claim 73 Patentably Defines Over APA

Claim 73 requires, *inter alia* :

- [a] receiv[ing] a packet containing a plurality of symbols, at least one of the symbols including encoding bits disposed therein and at least one subsequent data symbol encoded in a manner corresponding to the encoding bits of the symbol,
- [b] amplifying each symbol in the packet with a determined gain;
- [c] decoding the encoding bits within the symbol;
- [d] determining an appropriate gain for the at least one subsequent data symbol; and
- [e] causing the determined gain to be the appropriate gain for the at least one subsequent data symbol.

Claim 73 thus explicitly and clearly requires an apparatus that is capable of permitting mid-packet gain changes in a digital receiver. As with claim 1, a packet received by a receiver apparatus contains a plurality of symbols including at least one symbol including encoding bits and at least one subsequent data symbol encoded in accordance with the encoding bits. The apparatus of claim 73 requires amplifying each symbol with a determined gain, decoding the encoding bits of the one symbol to determine a an appropriate gain, causing the gain to be the appropriate gain for amplifying the subsequent data symbol. Antecedent basis of the claim requires that the determining and setting of gain to the appropriate gain must happen to symbols within the same data packet.

Similarly as set forth in connection with claim 1, the requirements of claim 73 are not taught or suggested by the APA as exemplified by FIG. 1. At most, the APA suggests that certain types of receivers can continuously vary the gain based on incoming signals, which gain

change may by happenstance occur in the middle of a symbol. However, such receivers do not operate to determine an appropriate gain by decoding the encoding bits within one symbol and causing the gain to be the appropriate gain and amplifying a data symbol in accordance with the decoded encoding bits of the same packet.

Accordingly, the invention of claim 73 patentably defines over the APA, and the § 102 rejection thereof, along with the rejection of claim 76 that depends thereon, should be withdrawn.

Independent Claim 80 Patentably Defines Over APA

Claim 80 requires, inter alia:

- [a] a portion of one symbol disposed within a packet containing a plurality of symbols
- [b] decoding the portion of the one symbol such that the decoding of the portion takes place within a first time period; and
- [c] decoding the entire symbol such that the decoding of the entire one symbol takes longer than the first time period.

The Office Action takes the position that the subject matter of claim 80, particularly that of “decoding the entire symbol such that the decoding of the entire one symbol takes longer than the first time period” for “decoding the portion of the one symbol” is inherent from the APA. However, a rejection based on inherency can only be supported if it can be proven that the missing subject matter is certainly present in the cited reference. Applicants respectfully submit that this is not the case and the basis for this rejection is improper.

In fact, the specification is completely silent about the time required by the APA for decoding symbols. Moreover, the specification is completely silent about decoding the required “portion of one symbol” differently than an entire symbol. Based on the understanding of those skilled in the art therefore, one would almost certainly conclude that the APA does not decode portions of symbols any differently than entire symbols, if anything.

According to one example of the invention (see the present specification at page 13, for example), an early signal detection block 304 is used to quickly locate and decode three bits

from the IEEE 802.11a SIGNAL symbol, which bits identify the data rate of the subsequently transmitted data.

This subject matter is not taught or suggested by the prior art including the APA. Accordingly, the § 102 rejection of claim 80, along with claim 82 that depends thereon, should be withdrawn.

Independent Claim 84 Patentably Defines Over APA

Claim 84 requires, *inter alia* :

- [a] receiv[ing a] data packet containing first and second pluralities of symbols, the first plurality of symbols including encoding bits disposed therein the second plurality of symbols including a first subsequent data symbol encoded in a manner corresponding to the encoding bits,
- [b] decoding the encoding bits within the first plurality of symbols;
- [c] setting the gain of the receive path amplifier to correspond to an appropriate gain in part based upon the encoding bits; and
- [d] amplifying the first subsequent data symbol with the appropriate gain.

Claim 84 thus explicitly and clearly requires an apparatus that is capable of permitting mid-packet gain changes in a digital receiver. As with claim 1, a data packet received by a receiver apparatus contains a first plurality of symbols including encoding bits and at least one subsequent data symbol encoded in accordance with the encoding bits. The method of claim 84 requires decoding the encoding bits of the one symbol to determine a an appropriate gain, setting the gain to the appropriate gain, and amplifying the subsequent data symbol with the appropriate gain. Antecedent basis of the claim requires that the determining and setting of gain to the appropriate gain must happen to symbols within the same data packet.

Similarly as set forth in connection with claim 1, the requirements of claim 84 are not taught or suggested by the APA as exemplified by FIG. 1. At most, the APA suggests that certain types of receivers can continuously vary the gain based on incoming signals, which gain change may by happenstance occur in the middle of a symbol. However, such receivers do not operate to determine an appropriate gain by decoding the encoding bits within a first set of

symbols and causing the gain to be the appropriate gain and amplifying a data symbol in accordance with the decoded encoding bits of the same packet.

Accordingly, the invention of claim 84 patentably defines over the APA, and the § 102 rejection thereof, along with claims 86-89 that depend thereon, should be withdrawn.

Claim Rejections Under 35 U.S.C. § 103

Claim 3 stands rejected under 35 U.S.C. § 103 over the APA in view of U.S. Patent No. 6,456,670 to Kindler et al. ("Kindler"). For reasons set forth more fully below, this rejection is respectfully traversed.

Claim 3 depends from claim 1, which is shown to be patentable over the APA for reasons set forth above. The missing "mid-packet" gain change subject matter of claim 1 is now shown by Kindler. Accordingly, claim 3 is patentable for at least the same reasons claim 1 is patentable.

Claim 3 further requires that the step of decoding "decodes only the encoding bits within the one symbol." According to one example of the invention (see the present specification at page 13, for example), an early signal detection block 304 is used to quickly locate and decode three bits from the IEEE 802.11a SIGNAL symbol, which bits identify the data rate of the subsequently transmitted data.

As set forth in claim 1, claim 3 requires that the "at least one subsequent data symbol [is] encoded in a manner corresponding to the encoding bits of the symbol."

Kindler merely discloses recovering carriers via frequency domain processing of a signal having data symbols. Kindler does not disclose or suggest anything about encoding bits required by claim 3, much less decoding only the encoding bits as required by claim 3. Accordingly, claim 3 patentably defines over Kindler for this additional reason, and the § 103 rejection thereof should be withdrawn.

Allowable Subject Matter

Applicants appreciate the Examiner's indication that claims 62-71, 78 and 79 are allowed and that claims 2, 4, 13-38, 43-56, 74, 75, 77, 81, 83 and 85 contain allowable subject matter. For reasons that should be apparent from the foregoing, Applicants defer amending claims into

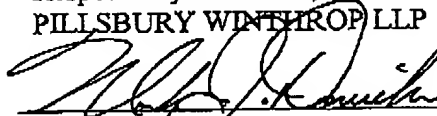
independent form as suggested in the Office Action, and reserve the right to do so later if necessary.

Conclusion

All objections and rejections having been addressed, it is believed the present application is in condition for allowance and a Notice to that effect is earnestly solicited. If any issues remain which the Examiner feels may be resolved through a telephone interview, s/he is kindly requested to contact the undersigned at the telephone number listed below.

Date: November 2, 2004

Respectfully submitted,
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